



## PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Translation

Applicant's or agent's file reference 41 075.fl.sev	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP2003/007463	International filing date (day/month/year) 10 July 2003 (10.07.2003)	Priority date (day/month/year) 08 August 2002 (08.08.2002)
International Patent Classification (IPC) or national classification and IPC B22D 11/12		
Applicant SMS DEMAG AKTIENGESELLSCHAFT		

- This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 6 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 3 sheets.

- This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 03 March 2004 (03.03.2004)	Date of completion of this report 22 December 2004 (22.12.2004)
Name and mailing address of the IPEA/EP	Authorized officer
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# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/EP2003/007463

## I. Basis of the report

1. This report has been drawn on the basis of *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.)*:

- ☐ the international application as originally filed.
- ☒ the description, pages 1-6, as originally filed,  
 pages \_\_\_\_\_, filed with the demand,  
 pages 7,8, filed with the letter of 14 September 2004 (14.09.2004),  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_.
- ☒ the claims, Nos. 3(in part), 4-10, as originally filed,  
 Nos. \_\_\_\_\_, as amended under Article 19,  
 Nos. \_\_\_\_\_, filed with the demand,  
 Nos. 1,2,3 (in part), filed with the letter of \_\_\_\_\_,  
 Nos. \_\_\_\_\_, filed with the letter of \_\_\_\_\_.
- ☒ the drawings, sheets/fig 1/4-4/4, as originally filed,  
 sheets/fig \_\_\_\_\_, filed with the demand,  
 sheets/fig \_\_\_\_\_, filed with the letter of \_\_\_\_\_,  
 sheets/fig \_\_\_\_\_, filed with the letter of \_\_\_\_\_.

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/fig \_\_\_\_\_

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

4. Additional observations, if necessary:

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

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PCT/EP 03/07463

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. Statement

Novelty (N)	Claims	5-10	YES
	Claims	1-4	NO
Inventive step (IS)	Claims		YES
	Claims	1-10	NO
Industrial applicability (IA)	Claims	1-10	YES
	Claims		NO

### 2. Citations and explanations

This report makes reference to the following documents:

- D1: WO 99 46071 A (HARTMANN RALF; WEYER AXEL (DE); GEERKENS CHRISTIAN (DE); SCHLOEMAN), 16 September 1999 (1999-09-16)
- D2: WO 01 89742 A (SCHMIDT PETER; VON WYL HORST (DE); BOETTGER DIETER (DE); SELKE AXE), 29 November 2001 (2001-11-29)
- D3: EP-A-0 804 981 (SUMITOMO METAL IND), 5 November 1997 (1997-11-05)

#### 1. Inventive step

##### 1.1 Claim 1

Document D1 is considered to constitute the prior art closest to the subject matter of claim 1 and discloses (the references in parentheses are to that document) a method for dynamically adjusting a cast metal strand (cf. figure 1 and claim 1) supported and/or guided on both sides by roller segments, using at least two successive roller pairs ("roller supports 1, 2") adjusted in relation to one another by piston-cylinder units (hydraulic cylinder units 8, 9, 10, 11) in a position-controlled and pressure-controlled manner, the hydraulic pressure being

then switched from position-controlled to pressure-controlled operation (cf. page 2, paragraphs 4 and 5) when the hydraulic pressure in a piston-cylinder unit reaches a predetermined value (cf. page 2, paragraphs 4 and 5, "adjustment unit threshold value"/"segment threshold value"). The roller segment or segments are thus prevented from applying excessive force (cf. D1, page 1, last paragraph) and dynamic adjustment within the meaning of claim 1 is achieved. The method defined in D1 can of course also be applied to roller segments of continuous bloom and billet casting devices, although figure 1 depicts a continuous slab casting machine (see claim 1, D1).

Furthermore, according to claim 1 of the present application, no special utilisation site is selected for the roller segments ("in the cold strand, warm strand and/or soft reduction zone"). The use of the dynamically adjustable roller segments known from D1 as roller segments in continuous bloom and billet casting devices does not involve an inventive step (PCT Article 33(3)).

D1 (see page 4, lines 6-9, and page 4, line 30 to page 5, line 3) also states that the roller segments are operated by a segment control unit and a basic automation unit.

It should also be noted that, from a formal point of view, D1 is not restricted to slab cross-sections (see the claims and the description). D1 is thus even prejudicial to novelty (PCT Article 33(2)).

#### 1.2 Claim 2

The hydraulic pressure switching from position-controlled to pressure-controlled operation depending on the processing phase, as defined in claim 2, also appears to

lack an inventive step because the device described in D1 also makes such switching possible. According to D1, the threshold values can be parameterised (cf. D1, claims 3-11). The possibility to parameterise the threshold values depending on the processing phase appears to be implicitly disclosed in D1.

2. D2 (see claims 1-7) discloses a *method for the dynamic adjustment of a cast metal strand* which, for the same reasons indicated in points 1.1 and 1.2 with regard to D1, anticipates the novelty and/or inventive step of claims 1-10 of the present application (see, in particular, the category of claim 1 in D2). D2 further discloses **explicitly that "the cast strand can be a slab strand or have a bloom cross-section, for example a dog-bone profile"** (see page 6, lines 174-175).

The application of the dynamically adjustable roller segments known from D2 to roller segments of continuous bloom and billet casting devices in the cold strand, warm strand and/or soft reduction zones is therefore not novel. Moreover, according to claim 1 of the present application, no special utilisation site for the roller segments is selected ("in the cold strand, warm strand and/or soft reduction zones"). The operation of the roller segments by a segment control unit and a basic automation unit does not involve an inventive step because it is obvious to a person skilled in the art (PCT Article 33(3)).

The method as per claims 1-2 therefore does not appear to be inventive in relation to D2 either (PCT Article 33(3)).

3. Continuous strand casting device as per claims 3-10

The above objections (points 1 and 2) also apply to the

**INTERNATIONAL PRELIMINARY EXAMINATION REPORT**

International application No.

PCT/EP 03/07463

device as per claims 3-10 (PCT Article 33(3)).

Reference is also made to D3, which discloses all the features of the continuous strand casting device as per claims 3-10 (cf. figures 1, 2, 7, 8).